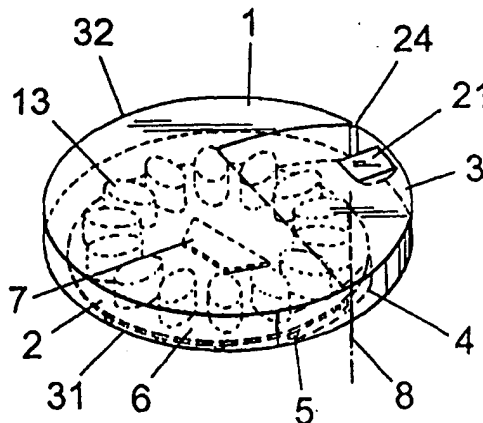




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(54) Title: DISPENSING DEVICE (57) Abstract <p>A tablet dispensing device, comprising: a casing (1) for housing a blister pack (6) which includes a plurality of blisters (13) each containing a tablet (17), which casing (1) includes an outlet opening (23) through which tablets (17) are in use dispensed; a support member (2) rotatably disposed in the casing (1) for supporting the blister pack (6); and a rotation mechanism for rotating the support member (2) relative to the casing (1), which rotation mechanism includes a movable member (3, 28) on the successive operation of which the blister pack (6) is successively rotated so as to position respective blisters (13) in a dispensing position such as to allow the tablets (17) contained therein to be dispensed through the outlet opening (23) in the casing (1).</p>		



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DISPENSING DEVICE

The present invention relates to a tablet dispensing device.

5 There is a need for dispensing devices for administering the correct amount of medicine at the right time. Conventional bottles for tablets can be difficult to open and the tablets are relatively unprotected when the seal has been broken. The lid may not be seal tightly enough and the degradation of the active substances will start when the seal is broken. Furthermore, no satisfactory control over the amount of tablets taken or when the tablets
10 are taken is possible.

Blister packs are common and practical packages for medicinal tablets which overcome some of the above-mentioned drawbacks. Each tablet is protected in a blister and it is evident that a tablet has been taken and it is easy to mark each blister with, for example,
15 the names of the days. Though, there are some drawbacks with blister packs. For example, elderly people find it difficult to press the tablet out of the blister. Therefore, there is a need for a device facilitating dispensing of tablets from blister packs.

Blister packs are mostly made in a rectangular form because of manufacturing reasons, but
20 also available in circular and strip form.

A device for a rectangular blister pack imply a button for pressing out a tablet of each blister at each blister or movable parts moving from one blister to the next. Such a device implies a complicated tool for manufacture.

25 Strips of blisters are difficult to load in a device since the tablets need to be exactly positioned to be dispensed properly. These kind of devices comprise a lot of parts and are of a complicated nature. A device for a circular blister pack would have the simplest construction and would be reliable in use. The device can be made of few parts.

On the market there is a device for dispensing tablets from a circular blister pack. It is for NICORETTE® Microtab tablets, a smoke weaning medicine, from Pharmacia & Upjohn.

The device comprises a flat openable casing with an upper and a lower casing portion
5 hingeably connected at the rear end of the casing and having two snap locks at the front end of the casing. Inbetween the upper and the lower casing portions there is a space for the circular blister pack.

The blister pack is put in the casing with its foil side facing the inner side of the lower
10 casing portion and is rotatably suspended around an inward circular protrusion in the lower casing portion. The blister pack has notches around its periphery. In the rear of the casing there is an opening, so that two hinges are provided, between which the blister pack is protruding.

15 In order to dispense a tablet the blister is positioned between a pressing tongue in the upper casing portion and an aligned hole in the lower casing portion. By rotating the blister pack at the protruding portion a notch at the periphery of the blister pack is aligned with a triangular mark on the upper casing portion. Then the pressing tongue in the upper casing portion, near the front, is pressed downward, thereby pressing the tablet out of the blister
20 and through the aligned hole in the lower casing portion.

In order not to crush or break the tablets it is important to position the blister correctly, which is difficult because of the aligning of the notch and mark is done by hand. Another problem is that burst foil gets caught inside the casing and therefore make it difficult to
25 rotate the blister pack and this can also obstruct the tablet from being properly dispensed. Another thing aggravating the rotational difficulties is that the blister pack gets distorted due to a too large dispensing hole in the lower casing portion. The pressing tongue presses the blister but since the hole is much bigger than the blister the portion around the blister will be pressed down, making a bump in the blister pack. Then it is very difficult to rotate
30 the blister pack.

It is an aim of the present invention to provide a device that readily dispenses tablets from a blister pack without rotational difficulties of the blister pack.

5 It is a further aim of the present invention to provide a device that exactly positions the blister in alignment with the outlet opening and the pressing means for dispensing of the tablet in the blister.

A further aim of the present invention is to provide a device that is child resistant.

10

Accordingly, the present invention provides a tablet dispensing device, comprising: a casing for housing a blister pack which includes a plurality of blisters each containing a tablet, which casing includes an outlet opening through which tablets are in use dispensed; a support member rotatably disposed in the casing for supporting the blister pack; and a
15 rotation mechanism for rotating the support member relative to the casing, which rotation mechanism includes a movable member on the successive operation of which the blister pack is successively rotated so as to position respective blisters in a dispensing position such as to allow the tablets contained therein to be dispensed through the outlet opening in the casing.

20

Preferably, the device further comprises a pressing mechanism for pressing on the blister in the dispensing position and dispensing the tablet contained therein. In a preferred embodiment the support member includes a plurality of openings adjacent which
25 respective blisters in the blister pack are in use aligned when the blister pack is supported thereby.

In a first embodiment the rotating means comprises an arm, journalled around an axis perpendicular to the rotatable plate and provided with cams for co-operating with protrusions provided on the rotatable plate to rotate, step-by-step, the rotatable plate when
30 a user pushes the arm towards the centre of the device.

In a second embodiment the rotating means comprises a biased feeder, slidable positioned in a recess in the casing along a portion of the periphery of the rotatable plate, which feeder engages with teeth provided along the periphery of the rotatable plate to rotate, step- by-
5 step, the rotatable plate forward when a user causes the feeder to slide in the recess.

Since the outlet hole in the casing has almost the same size, just slightly larger, as the blister no bending of the blister pack is possible and because of the foil breaker no uncontrolled foil pieces will get stuck inside the device and thereby cause rotational
10 difficulties or obstruct the tablet from being dispensed properly.

The rotating means assures an exact positioning of a blister in alignment with the outlet hole of the casing and the pressing means.

15 In the first embodiment, when the device is not operated, the through hole of the rotatable plate and the blister of the blister pack are not aligned with the outlet hole of the first portion of the casing and the pressing means and therefore no tablets can be dispensed. The blister and the through hole of the rotatable plate will be positioned for dispensing the tablet in the blister when the arm is pushed to its inner position. Then the tablet can be
20 pressed out by the pressing means. This embodiment of the device is quite child resistant. It is a two step function and preferably the size of the device is so large that a child can not operate the device with only one hand. Preferred embodiments of the present invention will now be described hereinbelow by way of example only with reference to the accompanying drawings, in which:

25

Fig. 1 shows in a perspective view a first embodiment of the present invention.

Fig. 2a-b show the invention according to the first embodiment with an integrated and separate arm, respectively.

30

Fig. 3a shows a rotatable plate and Fig. 3b shows a blister pack for the present invention.

Fig. 4 shows in a side view a ratchet function in a partially broken away casing.

5 Fig. 5a-d show the rotating function of the arm.

Fig 6a-b show means for controlled rupturing of the foil.

Fig. 7a-b show the pushing out of a tablet by a knob provided on the arm. The casing is
10 partially broken away.

Fig. 7c-d show the pushing out of a tablet by a press tongue provided on the arm. The casing is partially broken away.

15 Fig. 8 shows the pushing out of a tablet by a press tongue provided on the casing. The casing is partially broken away.

Fig. 9 shows a second embodiment of the present invention from above with the upper of the casing broken away.

20

Fig. 10 shows the rotatable plate. Fig. 11 shows the spring biased feeder.

Fig. 12 shows in a side view the second embodiment of the present invention. The casing is partially broken away.

25

Fig. 1 shows a first embodiment of the present invention. The device comprises a casing 1 and a support member or a rotatable plate 2, of a smaller diameter than the casing 1, journaled in a lower portion 31 of the casing 1 with a downward extending circular or annular centre protrusion 11 of the rotatable plate 2 placed in a circular or annular off
30 centre recess 12 of the lower portion 31 of the casing 1 or conversially arranged. The

rotatable plate 2 may also be journalled along the periphery of the rotatable plate 2 in a recess in the casing 1 or between a portion of the casing 1 and a few suspending protrusions along the rest of the periphery of the rotatable plate 2. See fig. 4. The lower portion 31 of the casing is provided with an outlet opening or hole 23.

5

The rotatable plate 2 is provided with openings or holes 18, see fig. 3a, to let through a dispensed tablet 17, the number and orientation corresponding to the blisters 13 in a blister pack 6, see fig. 3b. The size of the hole 18 is almost the same, just slightly larger, as the blister 13 to assure free way for the tablet 17 out of the hole 18. The blister pack 6 is positioned on the rotatable plate 2 by an interlocking boss 7 protruding from the rotatable plate 2 which suitably fits in a hole 14 with a matching form in the blister pack 6. The shape of the interlocking boss 7 and the hole 14 are so designed that the blister pack 6 only can fit in one single position.

15 Referring now to Figs. 5a-d, the rotatable plate 2 is provided with small protrusions 5 arranged in a circle near the periphery of the rotatable plate 2. All protrusions 5 are at the same radius distance from the rotational axis of the rotatable plate 2. The protrusions 5 are preferably provided on the side 33 of the rotatable plate 2 facing the lower portion 31 of the casing 1 but can be provided on the side 34 facing the upper portion 32 of the casing 1 or on both sides as well. Then the diameter of the blister pack 6 must be less than the diameter of the ring of protrusions 5.

A spring 4 biased arm 3, rotatably fixed in the casing 1, its pivot axis 8 being transverse to the plane of the rotatable plate 2, has two cams 15, 16 co-operating with the protrusions 5 on the rotatable plate 2 to rotate, step-by-step, the rotatable plate 2 and thereby the blister pack 6 when being pushed or pressed towards the centre of the device. The spring 4 is provided to return the arm 3 to the outer position, abutting a stop ridge 24, after being pushed inwards.

25

The arm 3 is either separate and protrude out of the casing to be operable, see fig. 2b and 8, or integrated with the casing 1, see fig. 2a and 7a. In the case of an integrated arm 3 a portion of the casing 1 forms the arm. The outlet hole 23 may be provided in the integrated arm 3 depending on its extension. The cams 15, 16 are provided on the lower portion 31 of the arm if the protrusions 5 are on the underside 33 of the rotatable plate 2, otherwise vice versa. If the protrusions 5 are on both sides one of the rotatable plate 2 the cams are provided on the upper portion of the integrated arm and the other cam is provided on the lower portion of the integrated arm. At least the portion of the arm 3 with the cams 15, 16, but preferably both the upper and the lower portion of the integrated arm 3 slides inside the casing 1 when pushed inwards.

The separate arm 3 can be provided with the cams 15, 16 either above the arm 3 to cooperate with the protrusions 5 underneath 33 the rotatable plate 2 when pushed in between the lower portion 31 of the casing 1 and the rotatable plate 2 or underneath the arm 3 to cooperate with the protrusions 5 above 34 the rotatable plate 2 when pushed in between the upper portion 32 of the casing 1 and the rotatable plate 2.

The cams 15, 16 can also be provided on a protruding arm positioned in between the upper and lower portions of the integrated arm 3 (not shown.). The arm 3 may have a recess or a hole to avoid the arm 3 being an obstacle when dispensing a tablet 17. This rotating function will be disclosed in more detail below.

In order to load the device with a blister pack 6 the casing 1, in a first embodiment of the casing, is opened by turning the integrated spring 4 biased arm 3 outwards, overriding the stop ridge 24, revealing an inlet large enough for the blister pack 6 to be positioned on the rotatable plate 2 or, in a second embodiment of the casing, by turning the integrated arm 3 outwards, snapping over the stop ridge 24, and in this embodiment lifting the hinged upper portion of the casing 1 and thereby making it possible to position a blister pack 6 on the rotatable plate 2.

In the case of a separate arm 3 the casing is of a third embodiment, which is opened for loading of a blister pack 6 at the recess in the casing 1 for the protruding arm by in this embodiment lifting the hinged 25 upper portion 32 of the casing 1, see Fig. 8.

5 Fig. 4 shows ratchet means provided to retain the rotatable plate 2 from rotating backwards. The ratchet means can be provided on top 34 of; around the periphery of or preferably underneath 33 the rotatable plate 2. The rotatable plate 2 is provided with ratchet teeth 9 on the underside 33 arranged in a circle around the centre of the rotatable plate 2 and the lower portion 31 of the casing 1 is provided with a ratchet arm 10 arranged
10 at the corresponding radius distance as the ratchet circle on the inside of the lower portion 31 of the casing 1, which is biased to engage with the teeth 9 but flexible to be able to slide over the next tooth 9 when the rotatable plate 2 is rotated forwards. Obviously the teeth 9 and the arm 10 can be conversely arranged.

15 To achieve a more reliable function elastic means 22 is provided pressing the ratchet teeth 9 against the arm 10. This elastic means 22 is arranged in the upper portion 32 of the casing 1 pressing down the rotatable plate 2 in the preferred orientation of the ratchet. If a high enough friction is provided between the rotatable plate 2 and the casing 1 no ratchet is needed.

20 Figs. 5a-d show schematically the rotating function obtainable with a separate arm 3. The rotational movement is divided into two parts; one caused by the pushing in of the arm 3 and the other caused by returning of the spring biased arm 3. When the device is not operated, at rest, the hole 18 of the rotatable plate 2 and the blister 13 of the blister pack 6
25 are not aligned with the outlet hole 23 of the lower portion of the casing 1 and no tablets 17 can be dispensed. In the case of an integrated arm 3 with an outlet hole the hole 18 of the rotatable plate 2 and the blister 13 of the blister pack 6 are not aligned with the outlet hole 23 of the lower portion of the arm 3. In this case, when at rest, it is not possible to reach the blister pack 6 and damage the foil.

Fig. 5a shows how the first cam 15 co-operates with one protrusion 5 on the rotatable plate 2. When the arm 3 is pushed inwards the cam 15 forces the protrusion 5 to move along the cam 15 and thereby rotating the rotatable plate 2. With cams 15, 16 positioned this way and of this shape the number of protrusions S and the number of the blisters 13 must equal.

5

Fig. 5b shows the arm 3 in its inner position. Now the hole 18 of the rotatable plate 2 and the blister 13 of the blister pack 6 are aligned with the outlet hole 23 of the lower part of the casing 1 and the tablet 17 can be dispensed. This will be disclosed below.

10 Fig. 5c shows how the second cam 16 co-operates with the next protrusion S when the arm 3 springs back. The cam 16 forces the protrusion S to move along the cam 16 and thereby rotating the rotatable plate 2.

Fig. 5d shows the arm 3 in its outer position. Again the hole 18 of the rotatable plate 2 and
15 the blister 13 of the blister pack 6 are not aligned with the outlet hole 23 of the lower portion 31 of the casing 1 and no tablets 17 can be dispensed. Hence, tablets 17 can only be dispensed when the arm 3 is in its inner position. After the pushing in and springing out of the arm 3 the blister pack 6 has rotated an angular distance n corresponding to 360 degrees divided by the number of blisters 13.

20

Fig. 6a shows a device, a foil rupturer 19, to achieve controlled rupturing of the foil. A sharp point is provided at the rim of the hole 18 in the rotatable plate 2. When pressure is applied to a blister 13 to press out a tablet 17, the foil, covering the blister, first hits the foil rupturer 19, which assures that the foil always ruptures at the same place in the same way.

25 When the rotatable plate 2 then is rotated, see fig. 6b, the foil is folded by the rim of the outlet hole 23 of the casing 1 and the inner bottom of the casing 1.

The rim of the hole 18 in the rotatable plate 2 is preferably widening downwards to facilitate dispensing of the tablet 17.

30

There are two different embodiments of the tablet pressing means, the second even more child resistant than the first. In the first embodiment the pushing of the arm 3 and the pressing out of a tablet 17 take place at the same time.

5 The arm 3 is provided with a knob 20 in the upper portion of the arm 3, in the case of an integrated arm 3, and provided with the cams 15, 16 in the lower portion of the arm 3. See figs. 7a-b. As mentioned earlier the cams can also be provided on the upper portion of the arm 3. Then the knob 20 is provided in the area between the cams 15, 16. The knob 20 is also provided in the area between the cams 15, 16 in the case of a separate arm 3, and
10 slides, when pushed inwards, between the upper portion 32 of the casing 1 and the rotatable plate 2.

When the arm 3 is pushed inwards it rotates the rotatable plate 2 and the knob 20 hits the blister 13 and starts pressing the tablet 17 out while the arm 3 progress inwards. When the
15 arm 3 has reached its inner position the tablet 17 is pressed out of the blister 13, through the hole 18 in the rotatable plate 2 and through the outlet hole 23 in the lower portion 31 of the casing 1. In the second embodiment, see figs. 7c-d, the function is divided into two steps, i.e. the pushing of the arm 3, to align the pressing means with the blister 13, and the pressing out of a tablet 17.

20

If the arm 3 is integrated with the casing 1 it is provided with a press tongue 21 in the upper portion of the arm 3 and if the arm 3 is separate, see fig. 8, the press tongue 21 is provided in the upper portion 32 of the casing 1, aligned with the outlet hole 23 of the lower portion of the casing 1. As a matter of fact the press tongue 21 may also be provided in the upper
25 portion of the casing 1 in the case of an integrated arm 3.

First the arm 3 is pushed inwards until it reaches its inner position, then the press tongue 21 is pressed down to press the tablet 17 out of the blister 13, through the hole 18 in the rotatable plate 2 and through the outlet hole 23 in the lower portion 31 of the casing 1.

30

The pressing means may be large, for example large enough for the user to use his thumb, to facilitate the dispensing of a tablet.

The rotation of the blister pack 6 inside the casing 1 can be done in a different way, according to a second embodiment of the present invention, see figs. 9-12.

The device comprises an openable casing 1 with an upper portion 32 and a lower portion 31 hinged together and a rotatable plate 2 journaled in the lower portion 31 of the casing 1 with a downward extending circular or annular centre protrusion 11 of the rotatable plate 2 positioned in a circular or annular recess 12 of the lower portion 31 of the casing 1. The lower portion 31 of the casing 1 is provided with an outlet hole 23.

The rotatable plate 2 is provided with holes 18 to let through a dispensed tablet 17, see Fig. 10, the number, size and orientation corresponding to the blisters 13 in a blister pack 6, see fig. 3b. The blister pack 6 is positioned on the rotatable plate 2 by an interlocking boss 7 protruding from the rotatable plate 2 which suitably fits in a hole 14 with a matching shape in the blister pack 6. The shape of the interlocking boss 7 and the hole 14 are so designed that the blister pack 6 only can fit in one single position.

As seen in Fig. 10 the rotatable plate 2 has teeth 27 on its periphery for rotation of the rotatable plate 2. A biased feeder 28, see Fig. 11, co-operates with the teeth 27. Fig 9 shows the device according to the second embodiment of the present invention with the upper portion 32 of the casing 1 broken away. The rotatable plate 2 is placed in the lower portion 31 of the casing 1. An arcuate recess 29 for receiving the feeder 28 is provided along a part of the periphery of the rotatable plate 2, preferably twice the length of the feeder 28 and the feeder 28 is preferably as long as the distance between two blisters 13.

In order to load the device with a blister pack 6 the upper portion 32 of the casing 1 is separated from the lower portion 31 of the casing 1 and the blister pack 6 positioned on the rotatable plate 2.

Ratchet means is provided either between the rotatable plate 2 and the lower portion 31 of the casing 1 or between the rotatable plate 2 and the upper portion 32 of the casing 1 to retain the rotatable plate 2 from rotating backwards (c.f. Fig 4). Preferably, the rotatable
5 plate 2 is provided with ratchet teeth 9 underneath 33, arranged in a circle around the centre of the rotatable plate 2 and the lower portion 31 of the casing 1 is provided with a ratchet arm 10, arranged at the same radius distance as the ratchet circle on the inside of the lower portion 31 of the casing 1, which is biased to engage with the teeth 9 but flexible to be able to slide over the next tooth 9 when the rotatable plate 2 is rotated forwards. It
10 will be understood that the teeth 9 and the arm 10 can be conversely arranged.

The ratchet means can also make use of the teeth along the periphery of the rotatable plate 2 and the arm can be provided on the inside of the rim of the casing 1. To achieve a more reliable function elastic means 22 can be provided that presses the ratchet teeth 9 against
15 protruding from the rotatable plate 2 which suitably fits in a hole 14 with a matching shape in the blister pack 6. The shape of the interlocking boss 7 and the hole 14 are so designed that the blister pack 6 only can fit in one single position.

As seen in Fig. 10 the rotatable plate 2 has teeth 27 on its periphery for rotation of the
20 rotatable plate 2. A biased feeder 28, see Fig. 11, co-operates with the teeth 27. Fig 9 shows the device according to the second embodiment of the present invention with the upper portion 32 of the casing 1 broken away. The rotatable plate 2 is placed in the lower portion 31 of the casing 1. An arcuate recess 29 for receiving the feeder 28 is provided along a part of the periphery of the rotatable plate 2, preferably twice the length of the
25 feeder 28 and the feeder 28 is preferably as long as the distance between two blisters 13.

In order to load the device with a blister pack 6 the upper portion 32 of the casing 1 is separated from the lower portion 31 of the casing 1 and the blister pack 6 positioned on the rotatable plate 2.

Ratchet means is provided either between the rotatable plate 2 and the lower portion 31 of the casing 1 or between the rotatable plate 2 and the upper portion 32 of the casing 1 to retain the rotatable plate 2 from rotating backwards (c.f. Fig 4). Preferably, the rotatable plate 2 is provided with ratchet teeth 9 underneath 33, arranged in a circle around the
5 centre of the rotatable plate 2 and the lower portion 31 of the casing 1 is provided with a ratchet arm 10, arranged at the same radius distance as the ratchet circle on the inside of the lower portion 31 of the casing 1, which is biased to engage with the teeth 9 but flexible to be able to slide over the next tooth 9 when the rotatable plate 2 is rotated forwards. It will be understood that the teeth 9 and the arm 10 can be conversely arranged.

10

The ratchet means can also make use of the teeth along the periphery of the rotatable plate 2 and the arm can be provided on the inside of the rim of the casing 1. To achieve a more reliable function elastic means 22 can be provided that presses the ratchet teeth 9 against the arm 10 as showed in Fig. 4. This elastic means 9 is attached in the upper portion 32 of
15 the casing 1 pressing down the rotatable plate 2.

The feeder 28 is placed in the recess 29 where a distal end of a tongue portion 30 engages with a tooth 27. To rotate the rotatable plate 2 the feeder 28 is pushed from one end of the recess 29 to the other bringing the rotatable plate 2 with it. When the feeder 28 is returned
20 to the first end again the ratchet retains the rotatable plate 2 from rotating backwards and the tongue portion 30 resiliently slides over the next tooth 27 along the periphery to engage with it when the feeder 28 has reached the first end.

The blister 13 is aligned with the outlet hole 23 of the casing 1 and pressing means 21
25 when the feeder 28 is in either end position of the recess 29. The pressing means is a press tongue 21, shown in Fig. 12, and is provided in the upper portion 32 of the casing 1 aligned with the outlet hole 23 in the lower portion 31 of the casing 1. To dispense a tablet 17 the press tongue 21 is pressed down and the tablet 17 is forced out of the blister 13, through the hole 18 in the rotatable plate 2 and through the outlet hole 23 in the lower portion 31 of
30 the casing 1.

Fig. 6a shows the foil rupturer 19, also used in this embodiment to achieve controlled rupture of the foil. A sharp point is provided at the rim of the outlet hole 18 in the rotatable plate 2. When pressure is applied to a blister 13 to press out a tablet 17, the foil, covering
5 the blister, first hits the foil rupturer 19, which assures that the foil always ruptures at the same place in the same way. When the rotatable plate 2 then is rotated, see Fig. 6b, the foil is folded by the rim of the outlet hole 23 of the casing 1 and the inner bottom of the casing 1.

10 The rim of the hole 18 in the rotatable plate 2 is preferably widening downwards to facilitate dispensing of the tablet 17. Finally, it will be understood that the present invention has been described in its preferred embodiments and can be modified in many different ways within the scope of the appended claims.

CLAIMS

1. A tablet dispensing device, comprising: a casing (1) for housing a blister pack (6) which includes a plurality of blisters (13) each containing a tablet (17), which casing (1) includes
5 an outlet opening (23) through which tablets (17) are in use dispensed;
a support member (2) rotatably disposed in the casing (1) for supporting the blister pack (6); and
a rotation mechanism for rotating the support member (2) relative to the casing (1), which rotation mechanism includes a movable member (3, 28) on the successive operation of
10 which the blister pack (6) is successively rotated so as to position respective blisters (13) in a dispensing position such as to allow the tablets (17) contained therein to be dispensed through the outlet opening (23) in the casing (1).
2. The device according to claim 1, wherein the support member (2) includes a plurality of
15 openings (18) adjacent which respective blisters (13) in the blister pack (6) are in use located when the blister pack (6) is supported thereby.
3. The device according to claim 1 or 2, further comprising a pressing mechanism (20, 21) for pressing on a blister (13) in the dispensing position and dispensing the tablet (17)
20 contained therein.
4. The device according to any of claims 1 to 3, wherein the blister (13), when in the dispensing position is in alignment with the outlet opening (23).
- 25 5. The device according to any of claims 2 to 4, wherein the blisters (13) are in alignment with the openings (18).
6. The device according to any of claims 1 to 5, wherein the device is provided with ratchet means comprising two co-operating parts, one part is provided on the support member (2)
30 and the other part is provided on the casing (1) for performing a one-way-rotation.

7. The device according to claim 6, wherein the one part of the ratchet means (9, 10) is provided on a first portion (31) of the casing (1), which is provided with the outlet opening (23), and the other part of the ratchet means (9, 10) is provided on a first side (33) of the support member (2) facing the first portion (31) of the casing (1).

8. The device according to claim 6 or 7, wherein the ratchet means comprises ratchet teeth (9) provided on the first side (33) of the support member (2) and a ratchet arm (10) provided on the inside of the first portion (31) of the casing (1).

10

9. The device according to claim 6 or 7, wherein the ratchet means comprises ratchet teeth (9) provided on the inside of the first portion (31) of the casing (1) and a ratchet arm (10) provided on the first side (33) of the support member (2).

10. The device according to claim 6, wherein one part of the ratchet means is provided on the rim portion of the casing (1) and the other part of the ratchet means is provided on the periphery of the support member (2).

11. The device according to claim 6, wherein one part of the ratchet means is provided on a second portion (32) of the casing (1), which is facing the first portion of the casing (1), and the other part of the ratchet means is provided on a second side (34) of the support member (2) facing the second portion (32) of the casing (1).

12. The device according to any of claims 6 to 8, wherein elastic means (22) is provided on the inside of the second portion (32) of the casing (1) pressing on the support member (2).

13. The device according to any of claims 2 to 12, wherein a sharp point (19) is provided at the rim of each opening (18) of the support member (2) to initiate controlled rupture of the foil of the blister pack (6).

14. The device according to claim 13, wherein said sharp point (19) is provided on the front portion of the rim of the opening (18) in the rotation direction of said support member (2).
- 5 15. The device according to any of claims 1 to 14, wherein at least one interlocking boss (7) of a certain shape protrudes from the support member (2) to engage with a hole (14) of corresponding shape in the blister pack (6) for positioning of said blister pack (6).
- 10 16. The device according to any of claims 1 to 15, wherein said rotation mechanism comprises an arm (3), journaled around an axis (8) perpendicular to the support member (2) and provided with cams (15, 16) for co-operation with protrusions (5) provided on the support member (2) to rotate, step-by-step, the support member (2) when a user pushes the arm (3) towards the centre of the device.
- 15 17. The device according to claim 16, wherein said arm (3) is integrated in the casing (1) and comprises a first portion corresponding to the first portion (31) of the casing (1) and a second portion corresponding to the second portion (32) of the casing (1).
- 20 18. The device according to claim 16, wherein said arm (3) is separate and protrudes out of the casing (1).
19. The device according to claim 16, wherein the protrusions (5) are provided in a circle near the periphery of the support member (2).
- 25 20. The device according to claim 19, wherein the protrusions (5) are provided on the second side (34) of the support member (2).
21. The device according to claim 19, wherein the protrusions (5) are provided on the first side (33) of the support member (2).

22. The device according to claim 19, wherein the protrusions (5) are provided on the both sides (33, 34) of the support member (2).

23. The device according to claim 17, 20 or 21, wherein said cams (15, 16) are provided on
5 the side of the integrated arm (3) facing the protrusions (5).

24. The device according to claim 13 or 18, wherein said cams (15, 16) are provided on both sides of the integrated arm (3) facing the protrusions (5).

10 25. The device according to claim 18, 20 or 21, wherein the cams (15, 16) are provided on the side of the separate arm (3) facing the protrusions (5).

26. The device according to claim 17 or any of claims 19 to 24, wherein the pressing mechanism is a knob (20) provided on the inside of the second portion of the integrated
15 arm (3), and forces the tablet (17) out of the blister (13) when the arm (3) is pushed inwards.

27. The device according to claim 17, 19, 20 or 25, wherein the pressing mechanism is a knob (20) provided on the side of the separate arm (3) facing the support member (2) in the
20 area between the cams (15, 16), and forces the tablet (17) out of the blister (13) when the arm (3) is pushed inwards.

28. The device according to any of claims 17 to 24, wherein said pressing mechanism is a press tongue (21) provided in the second (31) portion of the casing (1), align with said
25 outlet opening (23) of the casing (1), which, when the arm (3) is in its inner position and thereby positioning the blister (13) align with the outlet opening (23) of the casing (1), forces the tablet (17) out of the blister (13), when operated.

29. The device according to claim 17 or any of claims 19 to 24, wherein said pressing
30 mechanism is a press tongue (21) provided in the second portion of the integrated arm (3),

which, when the arm (3) is in its inner position and thereby positioning the blister (13) align with the outlet opening (23) of the casing (1), forces the tablet (17) out of the blister (13), when operated.

5 30. The device according to any of claims 6 to 15, wherein said rotation mechanism comprises a biased feeder (28), slidable positioned in an arcuate recess (29) in the casing (1) along a portion of the periphery of the support member (2), which feeder (28) engages with teeth (27) provided along the periphery of the support member (2) to rotate, step-by-step, the support member (2) one way when a user causes the feeder (28) to slide in the
10 recess (29).

31. The device according to claim 30, wherein said feeder (28) has a tongue portion (30) with a distal end engaging with the teeth (27) and adapted to rotate the support member (2) when being slided forward in the recess (29) and when being slided back the tongue
15 portion (30) rides over an adjacent tooth while the support member (2) is stable due to the ratchet means.

32. The device according to claim 30 or 31, wherein said pressing mechanism is a press tongue (21) provided in the second portion (32) of the casing (1), align with said outlet
20 opening (23) of the casing (1), which, when operated, forces the tablet (17) out of the positioned blister (13), through said opening (18) of the support member (2) and through the outlet opening (23) of the casing (1).

Fig 1

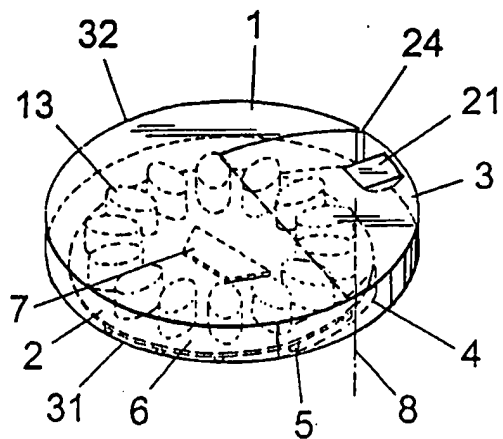


Fig 2a

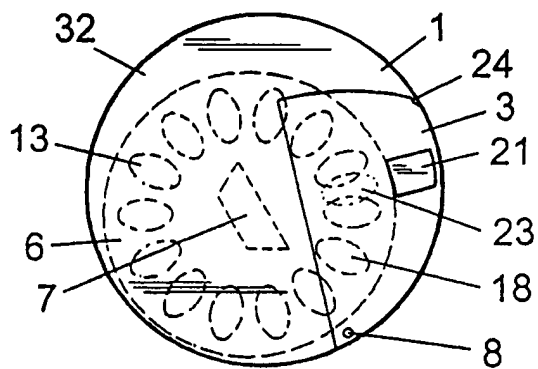
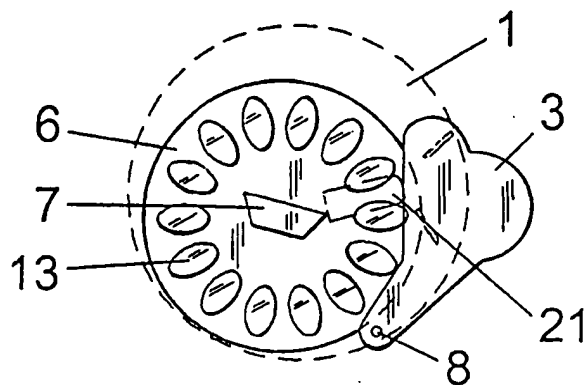


Fig 2b



2 / 7

Fig 3a

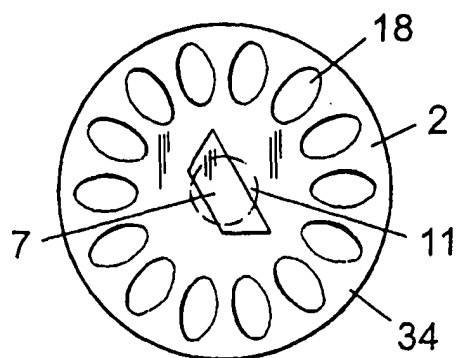


Fig 3b

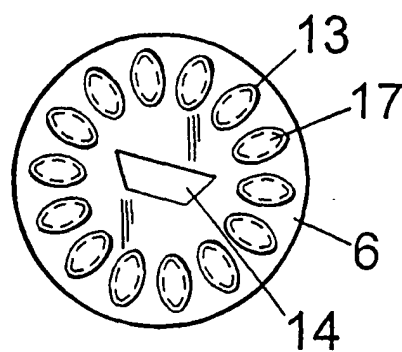


Fig 4

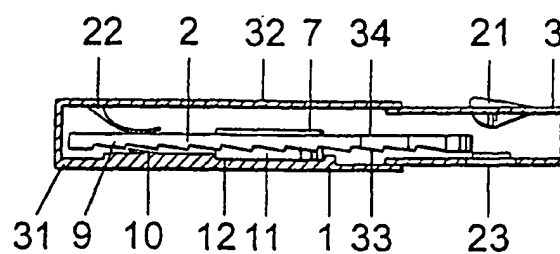


Fig 5a

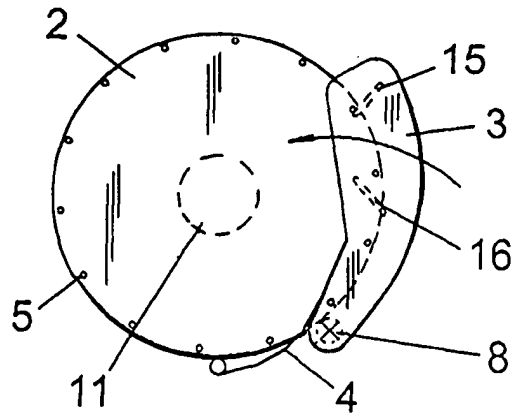


Fig 5b

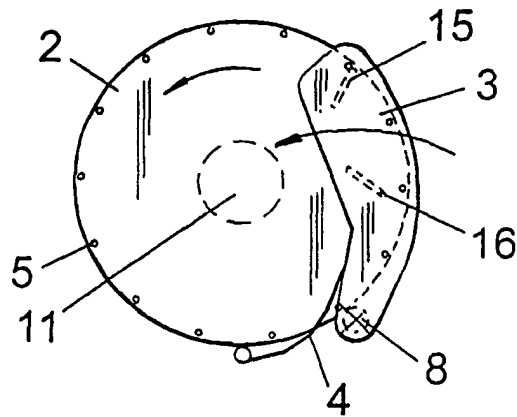


Fig 5c

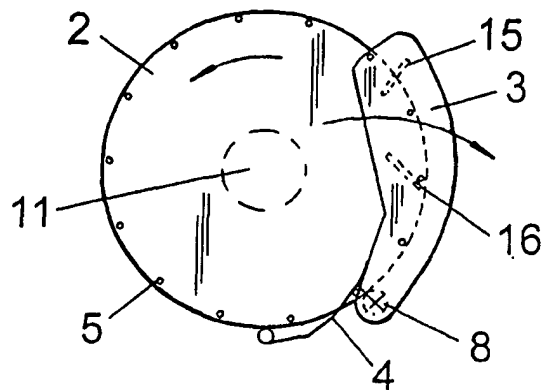


Fig 5d

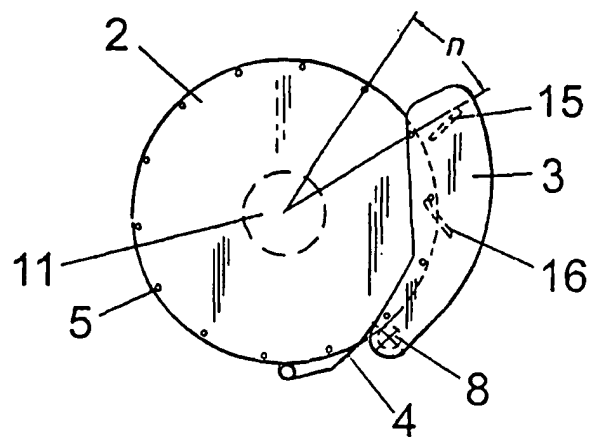


Fig 6a

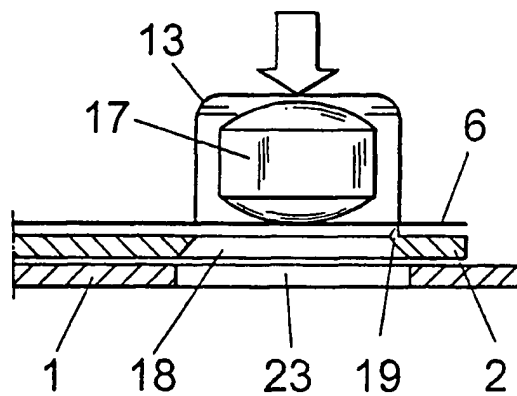


Fig 6b

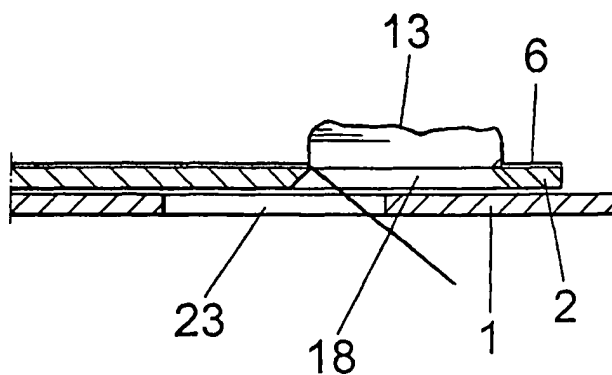


Fig 7a

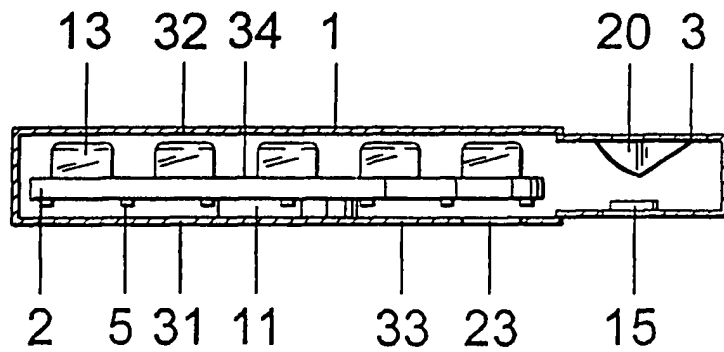


Fig 7b

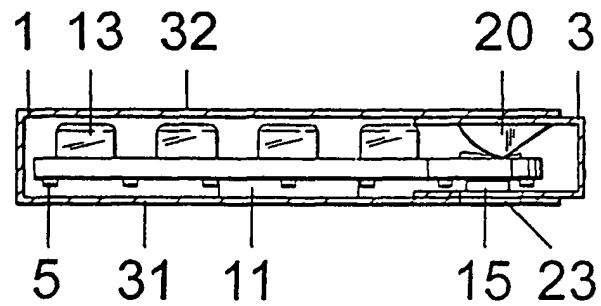


Fig 7c

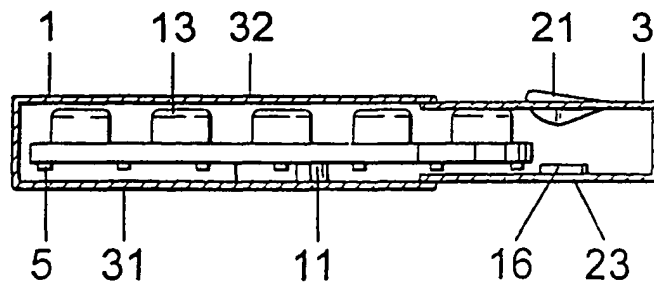


Fig 7d

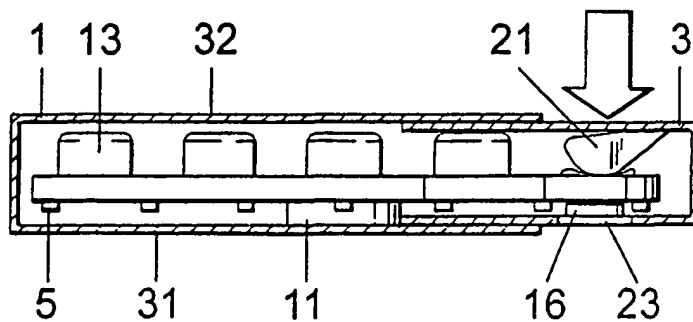


Fig 8

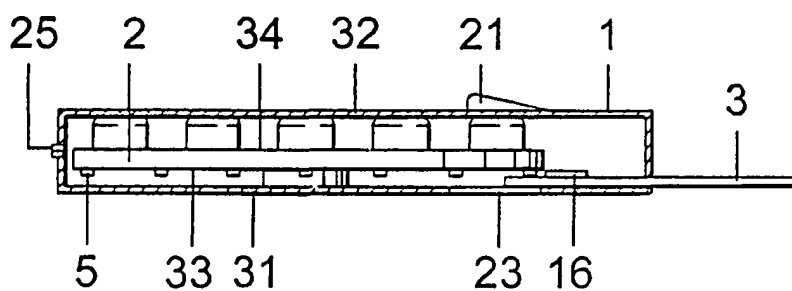


Fig 9

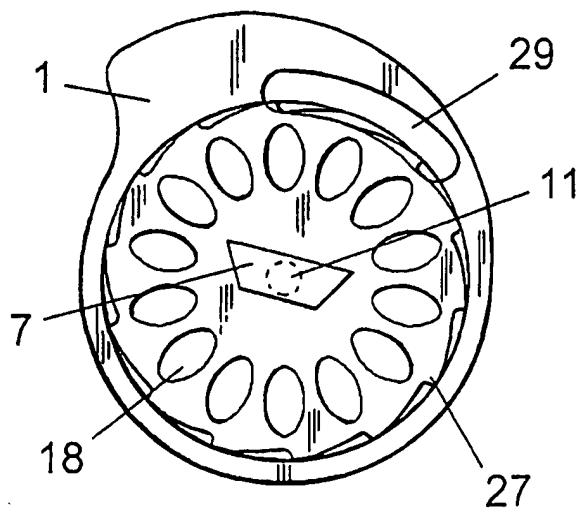


Fig 10

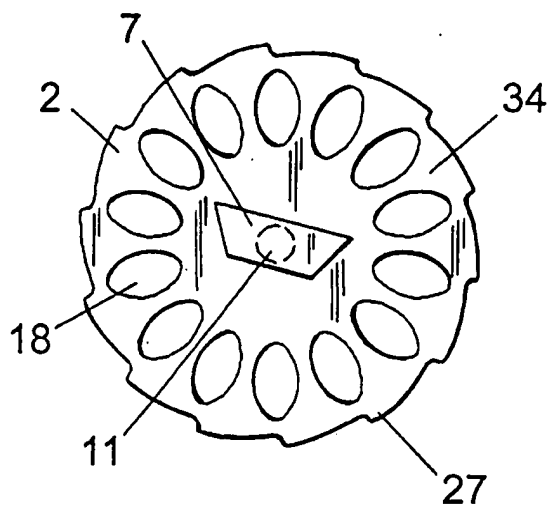


Fig 11

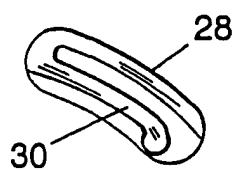
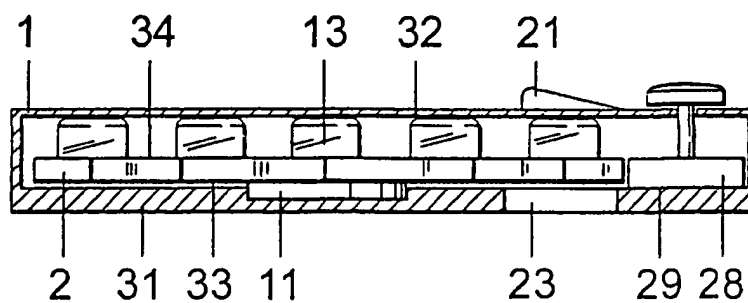


Fig 12



INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 00/00081

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: B65D 85/04 // A61J 001/03

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: B65D, A61J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WPI, EPODOC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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A	WO 9013878 A1 (ORTHO PHARMACEUTICAL CORPORATION), 15 November 1990 (15.11.90), figures 1-12, claims 1-7 --	1-32

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents

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"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

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Date of the actual completion of the international search

13 April 2000

Date of mailing of the international search report

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INTERNATIONAL SEARCH REPORT

International application No.

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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